

**COMMONWEALTH OF VIRGINIA  
Department of Environmental Quality  
Piedmont Regional Office**

**STATEMENT OF LEGAL AND FACTUAL BASIS**

King and Queen Sanitary Landfill  
BFI Waste Systems of Virginia, LLC  
Permit No. PRO -40937

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, BFI Waste Systems of Virginia, LLC has applied for a Title V Operating Permit for its King and Queen Sanitary Landfill facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:\_\_\_\_\_ Date: July 21, 2005

Air Permit Manager:\_\_\_\_\_ Date: July 21, 2005

Regional Permit Manager:\_\_\_\_\_ Date: July 21, 2005

## **FACILITY INFORMATION**

### **Permittee**

King and Queen Sanitary Landfill  
BFI Waste Systems of Virginia, LLC  
1000 Iris Road  
Little Plymouth, VA 23091

### **Facility**

King & Queen Landfill  
1000 Iris Road  
Little Plymouth, VA 23091

### **Responsible Official**

Mr. Timothy J. Schotsch  
General Manager  
804-785-2146

### **Contact person**

Mr. Raymond McGowan  
804-226-6197

**County-Plant Identification Number:** 51-097-0017

## **SOURCE DESCRIPTION:**

NAICS Code 562212 - Municipal Solid Waste (MSW) Sanitary Landfill (L01) with a design capacity of 24.7 million megagrams/61,940,000 cubic yards accepting MSW on 269 acres of lined disposal area, which includes Phases 1, 2, 3, 4, and 5. The landfill gas collection system includes two 3000 SCFM utility flare system for controlling NMOC emissions.

This facility was originally permitted on July 2, 1999 (Title V), revised December 28, 2001, November 7, 2003 and April 28, 2004 NSR permit incorporating requirements for up to two open utility flares. This draft permit is the renewal of the original Title V Permit.

## **COMPLIANCE STATUS**

The last inspection at the King and Queen Sanitary Landfill, BFI Waste Systems of Virginia, LLC facility by the Virginia Department of Environmental Quality occurred on July 22, 2004 and was found to be in compliance.

## EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

Equipment to be operated consists of:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device Description (PCD)	PCD ID	Pollutant Controlled	Applicable Permit Date
L01	1	Municipal Solid Waste Landfill, Solid Waste Permit No. 554, which includes Phases 1, 2, 3, 4, and 5 with GCCS.	24.7 million Megagrams/61,940,000 CY  90 Million BTU/Hour, 3000 scfm maximum  90 Million BTU/Hour, 3000 scfm maximum	GCCS and  Open Flare System – <u>Primary</u> (PEI or equal - LFG Specialties, Inc.) or Open Flare System – <u>Secondary</u> (PEI or equal)	1  PCD-01  PCD-02	NMOC	04/28/2004
		Landfill Surface and Roads	--	--	--	--	--

## EMISSIONS INVENTORY:

A summary King and Queen Sanitary Landfill, BFI Waste Systems of Virginia, LLC facilities' most recent annual emissions is shown below. Emission levels are expected to increase over time as the landfill waste decomposes.

PLANTWIDE EMISSIONS SUMMARY [TONS PER YEAR]		
CRITERIA POLLUTANTS	POTENTIAL EMISSIONS	2003 ACTUAL EMISSIONS
Particulate Matter (PM10)	11.2	4.92
Nitrogen Oxides (NOx)	39.4	5.45
Sulfur Dioxide (SO2)	2.9	1.32
Carbon Monoxide (CO)	98.6	29.66
NMOC/VOC	7.0/2.7	6.87/2.71

## EMISSION UNIT APPLICABLE REQUIREMENTS:

The BFI King and Queen Municipal Solid Waste (MSW) Sanitary Landfill (L01) has a design capacity of 24.7 million megagrams/61,940,000 cubic yards accepting MSW on 269 acres of lined disposal. Therefore, the landfill is regulated according to New Source Performance Standards (NSPS), Subpart WWW. As stated in 40 CFR 60.752(b), landfills above the 2.5 million cubic meters and 2.5 million Mg design capacity are subject to Title V permitting requirements.

**LEGAL AND FACTUAL BASIS FOR DRAFT PERMIT CONDITIONS:**

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the Commonwealth of Virginia Federal Operating Permit Regulations for the purposes of Title V of the Federal Clean Air Act (9 VAC 5 Chapter 80 Article 1), and underlying applicable requirements in other state and federal rules. Applicable requirement means all of the following as they apply to emissions units in a Title V source:

- a. Any standard or other requirement provided for in the State Implementation Plan or the Federal Implementation Plan, including any source-specific provisions such as consent agreements or orders.
- b. Any term or condition of any pre-construction permit issued pursuant to Article 6 (9 VAC 5-80-1100), Article 8 (9 VAC 5-80-1700 et seq.) of this part or Article 9 (9 VAC 5-80-2000) or of any operating permit issued pursuant to Article 5 (9 VAC 5-80-800), except for terms or conditions derived from applicable state requirements or from any requirement of these regulations not included in the definition of applicable requirement.
- c. Any standard or other requirement prescribed under these regulations, particularly the provisions of 9 VAC 5 Chapter 40 (9 VAC 5-40-10 et seq.), 9 VAC 5-50 (9 VAC 5-50-10 et seq.) or 9 VAC 5-60 (9 VAC 5-60-10 et seq.), adopted pursuant to requirements of the federal Clean Air Act or under § 111, 112 or 129 of the federal Clean Air Act.
- d. Any requirement concerning accident prevention under §112(r)(7) of the federal Clean Air Act.
- e. Any compliance monitoring requirements established pursuant to either §504(b) or §114(a)(3) of the federal Clean Air Act or these regulations.
- f. Any standard or other requirement for consumer and commercial products under § 183(e) of the federal Clean Air Act.
- g. Any standard or other requirement for tank vessels under §183(f) of the federal Clean Air Act.
- h. Any standard or other requirement in 40 CFR, Part 55 to control air pollution from outer continental shelf sources.
- i. Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the federal Clean Air Act, unless the administrator has determined that such requirements need not be contained in a permit issued under this article.
- j. With regard to temporary sources subject to 9 VAC 5-80-130, (i) any ambient air quality standard, except applicable state requirements, and (ii) requirements regarding increments or visibility as provided in Article 8 (9 VAC 5-80-1700 et seq.) of this part.
- k. Any standard or other requirement of the acid deposition control program under Title IV of the Clean Air Act or the regulations promulgated there under.
- l. Any standard or other requirement governing solid waste incineration under §129 of the Clean Air Act. Each state and federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 9 VAC 5-80 Article 1 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the state, but is not federally-enforceable is identified in the draft Title V permit as such.

## Limitations

The following Virginia Administrative Code and New Source Performance Standards have specific emission requirements that have been determined to be applicable:

- ▶ 40 CFR 60 Subpart WWW – “Standards of Performance for Municipal Solid Waste Landfills”  
- Applicable to Unit Nos. L01, PCD-1 and PCD-2.
- ▶ See the 04/28/2004 NSR permit attached for wording in the permit Conditions.
- ▶ The 04/28/2004 NSR permit conditions 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32 and 33 are included in the Title V permit. These conditions limit open flare opacity, hourly and annual emissions, operational standards (NSPS 60.18), restricts operation to one flare at a time, flare fuel types, flare fuel quantity, operational standards for the active gas collection/control system and mandates gas mover operation/shutdown to prevent venting for more than one hour.

## Periodic Monitoring

The NSPS Subpart WWW requires the permittee to maintain records including design capacity of the landfill, the current amount of solid waste in place, and the year-by-year waste acceptance rate. These requirements have been incorporated in the permit in condition III.C.20. Periodic monitoring for the operation of the gas collection system will be performed as follows: the gauge pressure, landfill gas (LFG) temperature, and the nitrogen or oxygen concentration for each well will be monitored each month, cover integrity and the methane concentration at the landfill surface shall be monitored at least once every quarter. Periodic monitoring for the operation of the gas control system will be monitored as follows: gas flow, recorded at least once every 15 minutes or monthly inspection of bypass line seals, and the combustion temperature shall be continuously monitored and recorded for utility flare combustion devices. Also, monitoring demonstrates the source complies with NSPS WWW by:

- collect gas from each area, cell or group of cells in which initial solid waste has been placed for a period of 5 years or more if active, or 2 years or more if closed or at final grade;
- is operated with each wellhead under negative pressure except as provided in 40 CFR 60.753 (b).
- is operated with each interior wellhead in the collection system having a landfill gas temperature less than 55 degrees C and having either a nitrogen content less than 20 percent, as determined by 40 CFR 60 Appendix A Method 3C, or an oxygen content less than 5 percent, as determined by 40 CFR 60 Appendix A Method 3A.
- reduces NMOC by 98 weight-percent or, for an utility or enclosed combustion device, either reduces NMOC by 98 weight-percent or reduces the outlet concentration to less than 20 ppmv, dry, as hexane, at 3 percent oxygen, as determined by 40 CFR 60 Appendix A Method 25C or 40 CFR 60 Appendix A Method 18.
- maintains the methane concentration at the surface of the landfill at less than 500 ppmv above the background level, then corrective actions shall be taken as specified in 40 CFR 60.755 (a) (3) through (5) or 40 CFR 60.755 (c). If corrective actions are taken as specified in 40 CFR 60.755(c)(4), the monitored exceedance is not a violation of the operational requirements of this permit or 40 CFR Subpart WWW. Criteria pollutant emissions (except VOCs) occur from combustion of fuel (LFG) as a result of utilizing the flare and are calculated based on AP-42 emission factors.

The facility is required to measure the flow rate and calculate emissions using emission factors for the new open flares. An initial performance test for NMOC emissions and control efficiency from the enclosed flare will be performed to determine the NMOC concentration to calculate the NMOC emission rate. The source must calculate criteria emissions using the measured flow rates and these emission factors on a monthly basis, totaling emissions for each consecutive twelve-month period. The 04/28/2004 NSR permit conditions 19, 20, 21, 22 and 23 are included in the Title V permit (III.B.9 – III.B.13).

### Record keeping

The permit includes requirements for maintaining records of all monitoring and testing required by the regulations. These records include the annual throughput of landfill gas, control efficiency tests of the control equipment, the annual placement of MSW in the landfill and all monitoring information for the GCCS, flares and liquid storage tanks. These specific requirements are listed in 40 CFR 60.758 and the 04/28/2004 NSR permit condition 24 is included in the Title V permit (III.C.14).

### Testing

The initial performance test to determine the net heating value of the gas being combusted and the actual exit velocity for the open flare has been satisfied. No other emissions testing is required, until the second open flare is installed. Test methods for required monitoring of oxygen or nitrogen content at each wellhead, as specified in Subpart WWW and the 04/28/2004 NSR permit conditions 30, 16, 17 and 18 are included in the Title V permit (III.D.15 – III.D.18).

### Reporting

All reports required by Subpart WWW (Section 60.755) shall be prepared and submitted to EPA and the Piedmont Regional Office in accordance with procedures outlined in Subpart WWW (Section 60.757) and the 04/28/2004 NSR permit conditions 25, 26, 27, 29, 28, 31, 32 and 33 are included in the Title V permit (III.E.20 – III.E.27). We are proposing to align the reporting dates to **March 1** and **September 1** for the 40 CFR 60, Subpart WWW Annual and Semi-Annual Reports to reduce confusion and redundant submittal of material common to the Title V Annual and Semi-Annual reports and the 40 CFR 63, Subpart AAAA, SSM Reports (40 CFR 63.10(5)(I) also allows for submission with other related reports). We are also aligning reporting dates for 40 CFR 63, Subpart AAAA below to **March 1** and **September 1**. All report will be due together and may be submitted together in a binder so that common materials can be referenced.

National Emissions Standards for Hazardous Air Pollutants (Municipal Solid Waste Landfills) - **The Landfill 'MACT' (40 CFR 63 Subpart AAAA), published January 16, 2003, includes the following additional requirements for affected MSW landfills.**

- a. Those affected sources defined as 'existing landfills' shall be in compliance with the specific items included in 40 CFR Part 63, Subpart AAAA by January 16, 2004.
- b. A "Startup, shutdown and malfunction" (SSM) Plan shall be developed and implemented for the facility. A copy shall be available on site for inspection by the DEQ and shall contain all revisions for the most recent five (5) years. (40 CFR 63.6(e)(3) and 40 CFR 63.1960)
- c. Annual reports of the operation of the GCCS, as required by the NSPS, Subpart 60.757(f), will be required semi-annually beginning with the first report after the compliance date of January 16, 2004. The time periods to be addressed are January 1 to June 30 and July 1 to December 31. (40 CFR 63.1980)

- d. Semiannual reports are required by 40 CFR 63, Subpart AAAA and 40 CFR 63.10(d)(5). The time periods to be addressed are January 1 to June 30 and July 1 to December 31. SSM Reports shall be submitted on **March 1** and **September 1** of each calendar year. The SSM plan (report) should include the following:
- 1) Each SSM event and a description of how thorough the facility complied with each item contained in the SSM Plan.
  - 2) Inconsistent actions taken by the facility during an SSM event must be recorded within two working days of the event and a letter must be submitted to the Administrator within seven days of the event. Any new actions that are indicated as appropriate during an SSM event shall be incorporated in a new SSM Plan.
  - 3) Any revisions to the SSM Plan for the period.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five (5) years.  
(40 CFR 63.1930 through 63.1990)

#### **Facility Wide**

The facility limits include Dust Emission Standards, Operational Requirements and Operation of Landfill based on Conditions 7, 8 and 10 of the NSR permit dated 04/28/2004, which are included in the Title V permit (IV.A28 – IV.A.30).

#### **Streamlined Requirements**

The requirement to submit an initial collection and control plan (60.752(b)(2)(i)) was streamlined out of the permit. This requirement has been met.

The permittee shall submit a revised gas collection and control system design plan to take into account the use, testing, and monitoring of the open flare. The revised gas collection and control design plan shall be submitted to the Director, Piedmont Region for approval by September 1, 2004.

(9 VAC 5-80-10, Condition 9 of the NSR permit dated 04/28/2004)

#### **GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

#### **Comments on General Conditions**

##### **B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.1-20.01:2 and §10.1-1185 of the *Code of Virginia*, and the "Department of Environmental Quality Agency Policy Statement NO. 3-2001".

This general condition cites the Articles that follow:  
Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80.

Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

- 9 VAC 5-80-80. Application
- 9 VAC 5-80-140. Permit Shield
- 9 VAC 5-80-150. Action on Permit Applications

**F. Failure/Malfunction Reporting**

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

This general condition cites the sections that follow:

- 9 VAC 5-40-41. Emissions Monitoring Procedures for Existing Sources
- 9 VAC 5-40-50. Notification, Records and Reporting
- 9 VAC 5-50-50. Notification, Records and Reporting

This general condition contains a citation from the Code of Federal Regulations as follows:  
40 CFR 60.13 (h). Monitoring Requirements.

**J. Permit Modification**

This general condition cites the sections that follow:

- 9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
- 9 VAC 5-80-190. Changes to Permits.
- 9 VAC 5-80-260. Enforcement.
- 9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
- 9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
- 9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

**U. Malfunction as an Affirmative Defense**

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:

- 9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction
- 9 VAC 5-80-110. Permit Content



## **Y. Asbestos Requirements**

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:

40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.

40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.

40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:

9 VAC 5-60-70. Designated Emissions Standards

9 VAC 5-80-110. Permit Content

### **STATE ONLY APPLICABLE REQUIREMENTS**

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

9 VAC 5 Chapter 50, Part II, Article 2: Standards of Performance for Odorous Emissions

9 VAC 5 Chapter 50, Part II, Article 3: Standards of Performance for Toxic Pollutants

### **REQUEST FOR VARIANCES OR ALTERNATIVES:**

None.

### **FUTURE APPLICABLE REQUIREMENTS**

On May 23, 2002, EPA proposed significant revisions (67 FR 36476) in order to clarify: 1) responsibility for compliance activities on-site; 2) definition of treated landfill gas; 3) initial test performance test requirements; and 4) compliance activities conducted by third parties with control systems off-site. A copy of 67 FR 36476 is attached to the Title V permit and this SOB for reference.

### **INAPPLICABLE REQUIREMENTS**

None were identified in the application.

## INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, record keeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110. The following emission units at the facility are identified in the application as insignificant emission units under 9 VAC 5-80-720:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted	Rated Capacity (5-80-720 C)
L03	Fixed roof, vertical leachate storage tank	5-80-720 B.	VOC	500,000 Gallon
L04	Fixed roof, vertical leachate storage tank	5-80-720 B.	VOC	500,000 Gallon
L05	Horizontal Above Ground Diesel Fuel storage tank	5-80-720 B.	VOC	4,000 Gallon off road diesel
L06	Horizontal Above Ground Diesel Fuel storage tank	5-80-720 B.	VOC	1,000 Gallon on road diesel
L07	Horizontal Above Ground Diesel Fuel storage tank	5-80-720 B.	VOC	10,000 Gallon off road diesel
L08	Emergency Diesel Generator Set	5-80-720 C.	VOC	225 kW

These emission units are presumed to be in compliance with all requirements of the federal Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping, or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

## CONFIDENTIAL INFORMATION

None.

## COMMENT PERIOD:

The public notice appeared in The *Tidewater Review* on April 27, 2005.

Beginning Date: (April 27, 2005)

Ending Date: (May 27, 2005)

On May 26, 2005 comments were received during the Public Comment period from the applicant requesting a number of minor wording changes to the permit conditions and SOB (letter attached). On June 21, 2005, the Department sent a letter proposing only minor necessary changes (letter attached). The majority of changes to the underlying April 28, 2004 NSR permit were rejected. The change to the SOB was to correct the Potential Emissions Table for NMOC. The applicant agreed on July 20, 2005 that the changes were sufficient. No other comments were received. The minor nature of the comments, therefore, do not require an additional public comment period and the Title V permit renewal can proceed.

US EPA comments were resolved during the concurrent comment period by adding to the future applicable requirements:

On May 23, 2002, EPA proposed significant revisions (67 FR 36476) in order to clarify: 1) responsibility for compliance activities on-site; 2) definition of treated landfill gas; 3) initial test performance test requirements; and 4) compliance activities conducted by third parties with control systems off-site. A copy of 67 FR 36476 is attached to the Title V permit and this SOB for reference.

See attached comments by US EPA and Email resolving the issues of Malfunction as an Affirmative Defense and emissions trading general conditions (no changes to the draft permit were required per US EPA).